

DIRECT TESTIMONY OF
MICHAEL D. SHINN
ON BEHALF OF
SOUTH CAROLINA ELECTRIC & GAS COMPANY
DOCKET NO. 2018-2-E

1 **Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, AND CURRENT**
2 **POSITION.**

3 A. My name is Michael D. Shinn, and my business address is 220 Operation
4 Way, Cayce, South Carolina 29033. I am currently employed by SCANA Services,
5 Inc. as General Manager of the Fuel Procurement and Asset Management
6 Department (“Fuel Department”).

7
8 **Q. PLEASE BRIEFLY SUMMARIZE YOUR DUTIES WITH SOUTH**
9 **CAROLINA ELECTRIC & GAS COMPANY (“SCE&G” OR**
10 **“COMPANY”).**

11 A. My responsibilities include managing the purchase and delivery of coal, No.
12 2 fuel oil, and limestone on behalf of the Company and as an agent for South
13 Carolina Generating Company (“GENCO”). Also, I am responsible for uranium
14 procurement functions for the nuclear generating facilities operated by SCE&G.
15 These responsibilities include the contracting for natural uranium and conversion
16 services.

1 **Q. DESCRIBE YOUR EDUCATIONAL BACKGROUND AND YOUR**
2 **BUSINESS EXPERIENCE.**

3 A. I earned a Bachelor of Science Degree in Mechanical Engineering from the
4 University of South Carolina in Columbia, South Carolina, in 1995. While in
5 college, I was a student intern in the Fossil Hydro Power Plant Performance Group
6 for five years. Since graduation, I have held various positions within the Fuel
7 Department to include managing rail transportation and delivery, spot coal
8 purchasing, coal quality management, synthetic fuel optimization, and state and
9 federal regulatory reporting. While Manager of Fuel Technical Services, Industrial
10 Coal and Synfuel, I worked with coal suppliers and SCE&G's power plants to
11 increase fuel and transportation flexibility as well as to maximize the utilization of
12 the Company's assets. In December 2009, I was promoted to General Manager of
13 the Coal and Oil Procurement Department, and in January 2016, I assumed my
14 current position.

15
16 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

17 A. The purpose of my testimony is to describe the procurement and delivery
18 activities for coal and No. 2 fuel oil used in electric generation for SCE&G as well
19 as GENCO's Williams Station for the period January 1, 2017, through December
20 31, 2017 (the "Review Period"). I also discuss changes that have occurred in coal
21 markets since the last annual fuel adjustment hearing and how these changes
22 affected coal procurement during the Review Period. My testimony also describes

1 the procurement and delivery of limestone for our wet scrubbers located at the
2 Wateree and Williams steam plants. Finally, my testimony explains the nuclear fuel
3 purchasing process for SCE&G generation and discusses uranium prices for the
4 Review Period and the near-term outlook.

5
6 **Q. PLEASE DESCRIBE GENCO AND ITS RELATIONSHIP TO SCE&G.**

7 A. GENCO was incorporated on October 1, 1984, and owns Williams Electric
8 Generating Station. GENCO sells to SCE&G the entire capacity and output from
9 Williams Station under a Unit Power Sales Agreement approved by the Federal
10 Energy Regulatory Commission. Hereafter, when I refer to SCE&G's fossil steam
11 plants, I include GENCO.

12
13 **COAL, NO. 2 FUEL OIL, AND**
14 **LIMESTONE PURCHASING**

15 **Q. PLEASE SUMMARIZE SCE&G'S FUEL PROCUREMENT NEEDS AND**
16 **PURCHASING PRACTICES FOR SCE&G'S FOSSIL PLANTS.**

17 A. The Fuel Department purchases all coal, No. 2 fuel oil, limestone, and
18 associated transportation for SCE&G's fossil plants focusing on reliability of
19 supply, conformity with operational and environmental requirements, and
20 reasonable prices. Given its mix of generation assets, SCE&G has significant need
21 for coal in any given year to provide reliable energy service to our customers. In
22 2017, for example, SCE&G consumed 3,345,388 tons of coal in the production of

1 electricity for its customers. This amount was within 0.3% of the coal consumed in
2 2016.

3
4 **Q. WHAT DO YOU EXPECT THE BURN RATE FOR COAL WILL BE IN**
5 **2018?**

6 A. The Company projects that its burn rate for coal in 2018 will be
7 approximately 3,322,317 tons. This projected burn rate is based on normal weather,
8 a scheduled refueling outage at V.C. Summer Nuclear Station, the Company's
9 projections of coal and natural gas prices, and the economic dispatch of units.

10
11 **Q. HOW DOES THE COMPANY SECURE NECESSARY QUANTITIES OF**
12 **COAL AND NO. 2 FUEL OIL AT COMPETITIVE PRICES?**

13 A. SCE&G maintains an active list of qualified suppliers of coal and No. 2 fuel
14 oil. Typically, as contracts expire or needs are identified, solicitations are issued for
15 competitive sealed bids. Responses to these solicitations inform our knowledge of
16 market demand and prices. Moreover, because the responses to these solicitations
17 often include proposals for coal supplies with specifications different than the
18 requested specifications, these responses also aid our ongoing efforts to ascertain
19 price differences for varying qualities of fuels.

Q. HOW DOES SCE&G APPROACH THE MARKETPLACE FOR COAL AND NO. 2 FUEL OIL?

A. Coal is procured under long-term (more than one year) and spot purchase (up to one year) agreements to achieve a balance of reliable supplies while maintaining flexibility to react to market changes or short-term system needs. Under historic market conditions, SCE&G seeks to have long-term purchases represent approximately 75% to 80% of projected system demand. Spot purchases provide a mechanism to manage inventories and react to short-term changes in the marketplace, and generally represent 20% to 25% of projected system demand.

In contrast to the complexities of coal purchasing contracts, contracts for No. 2 fuel oil are requirements contracts that are competitively solicited every two years. Generally, pricing for these contracts is based upon market indices that are adjusted daily.

Q. PLEASE SUMMARIZE THE COMPANY'S COAL PURCHASES DURING THE REVIEW PERIOD.

A. The Company took delivery of 2,158,563 tons of coal under long-term agreements and 1,252,246 tons of coal through spot purchases during the Review Period. As a whole, long-term agreements provided 63.29% of the requirement for the Company's coal-fired stations, while spot purchases accounted for the remaining 36.71% of SCE&G's coal requirements during 2017. In summary, operational considerations, weather, fuel market conditions, and economic dispatch of the

1 Company's generating assets combined to impact SCE&G's balance of coal
2 purchases in the Review Period, driving the Company to rely more heavily on short-
3 term agreements to meet its requirements for coal.

4
5 **Q. FOR 2018, PLEASE EXPLAIN THE COMPANY'S PLANS FOR**
6 **ADDRESSING ITS NEEDS FOR COAL SUPPLIES UNDER LONG-TERM**
7 **CONTRACTS AND SPOT PURCHASES.**

8 A. While SCE&G's goal has been and remains one of balancing its purchases
9 of coal between long-term and short-term contracts, market conditions, weather, and
10 operational demands may alter this balance in any given year. The present state of
11 the coal market is such that many domestic coal producers have been forced to lay
12 off employees, retire assets, file for bankruptcy, and close (both short- and long-
13 term) mines that either supply the Company or have supplied the Company with
14 coal in the recent past. And, although coal production is projected to increase in
15 2018, much of this increase is driven by demand in international markets for export
16 coal. With the expansion of eastern utilities into non-traditional coal basins and the
17 proliferation of combined-cycle gas generation, the economic outlook for domestic
18 Central Appalachian ("CAPP") suppliers remains difficult and uncertain.

19 SCE&G anticipates soliciting suppliers of coal for additional long-term
20 contracts in 2018. The Company currently has contracts in place that will meet its
21 traditional balance of 75% of coal supplies through long-term contracts and 25%
22 through short-term contracts in 2018. However, this balance may not be achieved

1 because of market conditions, weather, and operational considerations. The
2 Company plans to maintain the flexibility to manage its coal inventories and
3 purchase the most competitively priced fuel being ever mindful that its burn rate has
4 the potential to fluctuate widely due to market conditions and changes in the price
5 of coal or natural gas which may result in imbalances of fuel supply and demand.
6 In sum, the Company will continue to evaluate market conditions carefully, always
7 seeking to purchase coal supplies for our customers at economically reasonable
8 prices while ensuring that the Company's service commitments are reliably and
9 prudently met.

10
11 **Q. WITH THE BACKGROUND SET FORTH ABOVE, HOW MUCH COAL**
12 **DOES SCE&G PLAN TO PURCHASE IN 2018 UNDER LONG-TERM**
13 **CONTRACTS?**

14 A. The Company is committed to maintaining reliable supply sources of coal
15 and, therefore, it must continue to enter into long-term agreements for a portion of
16 its coal requirements. SCE&G currently has long-term contracts with five suppliers
17 for the delivery of 2.7 million tons of coal. This quantity represents 79.1% of
18 SCE&G's expected total coal receipts for 2018. The coal purchased under these
19 contracts ranges in quality from 12,500 to 12,700 British Thermal Units ("BTU")
20 per pound and from 1.00% to 1.63% sulfur content. These contracts are for an initial
21 period of three years, and some of the contracts have options to renew. The amount
22 of coal under contract will vary from year to year, and the contract terms will vary

1 from contract to contract. For example, in some of SCE&G's coal contracts, we
2 have been successful in negotiating fixed pricing for the term of the contract, while
3 other coal contracts contain predetermined price adjustments.

4 During 2018, the Company will continue to carefully evaluate its need for
5 coal in future periods. We anticipate that SCE&G will negotiate additional
6 commitments for coal supply for 2019 and beyond seeking to maintain a reasonable
7 balance between coal supplied under long-term contracts and spot purchases while
8 obtaining coal at reasonable prices and ensuring that the Company's supply
9 requirements are reliably and prudently met. To fulfill its future requirements, the
10 Company may choose to negotiate with existing coal suppliers to extend or renew
11 existing long-term contracts, may choose to negotiate directly with other suppliers
12 seeking new contracts, or may decide to issue a general solicitation for some or all
13 of its needed long-term supply. The Company's goal is always to provide our
14 customers with reliable coal-fired generation at reasonable fuel prices. We have
15 worked diligently in the past to achieve this goal and will continue to do so in 2018
16 and beyond.

17
18 **Q. FOR 2018, PLEASE EXPLAIN THE COMPANY'S CURRENT PLANS FOR**
19 **ADDRESSING ITS NEEDS FOR COAL SUPPLIES UNDER SHORT-TERM**
20 **CONTRACTS.**

21 A. The Company currently has spot contracts with seven suppliers for the
22 delivery of 284,352 tons of coal. This quantity represents 8.2% of SCE&G's

1 expected total coal receipts for 2018. The purchase of the remainder of the
2 Company's expected coal purchases in 2018 of 12.7% (100% - (79.1% long-term +
3 8.2% short-term) = 12.7%) will be heavily dependent on weather and the generation
4 produced at the other generation assets employed by SCE&G. The Company will
5 make additional spot or long-term purchases as needed to ensure that sufficient
6 supply is available for its electricity generation needs at a reasonable price.
7 Acquiring coal supplies in this manner will provide SCE&G with the flexibility to
8 manage its generation assets in the most cost-effective way, which can vary from
9 month to month.

10
11 **Q. GIVEN THE STATE OF THE DOMESTIC COAL MARKET, WILL**
12 **SUFFICIENT SUPPLIES OF COAL BE AVAILABLE ON THE SPOT**
13 **MARKET TO MEET THE COMPANY'S GENERATION NEEDS?**

14 A. With utilities across the country relying more heavily on natural gas
15 generation facilities, the demand for coal in the domestic market has continued to
16 fluctuate. Nevertheless, coal suppliers are continuing to produce. Some of this
17 continued production is the result of federal regulations, which require coal
18 suppliers to follow certain procedures when closing a mine. Because compliance
19 with these regulations can be costly, certain coal suppliers elect to continue
20 operating the mines at a loss instead of closing a mine and discontinuing coal
21 production so that they do not have to incur these regulatory expenses.
22 Notwithstanding this downward pressure in the domestic market, the coal market

1 recently has strengthened due to increasing demand for coal exports for both steam
2 coal and metallurgical coal. While the Company does not anticipate that these
3 market conditions will change in the short-term, current supply forecasts indicate
4 that ample coal supplies will be available in the foreseeable future.

5
6 **Q. HOW DOES SCE&G ENSURE THAT THE RIGHT QUANTITY OF FUEL**
7 **SUPPLIES IS AVAILABLE TO MEET GENERATION DEMANDS AT ITS**
8 **FOSSIL FUEL FACILITIES?**

9 A. SCE&G uses several steps to bring the fuel supply and demand factors
10 together. Fuel usage levels are calculated and forecasted for each of the generating
11 plants. Coal and No. 2 fuel oil inventories are then validated and contract quantities
12 are summed and compared against system usage to determine needs going forward.
13 With this information, the Fuel Department carefully evaluates the Company's coal
14 requirements and determines whether transportation options under current
15 contracts, spot purchases, or additional long-term agreements are appropriate.
16 Through this process, SCE&G has been successful in leveraging long-term and
17 short-term coal purchases to achieve reasonable purchase prices while ensuring the
18 reliability of coal supplies necessary to support system needs.

19 No. 2 fuel oil is purchased to ensure adequate back up to natural gas for
20 SCE&G's intermediate and peaking generators. Typically, fuel storage tanks are
21 filled going into peak usage periods.

**Q. HOW DOES THE COMPANY DETERMINE A “REASONABLE PRICE”
FOR COAL AND NO. 2 FUEL OIL PURCHASES?**

A. The Fuel Department works diligently to achieve an optimization between adequate fuel supplies of acceptable quality at reasonable purchase prices. The ultimate value of the delivered fuel (coal or No. 2 fuel oil) is determined by the actual delivered cost per Million British Thermal Units (“MMBTU”), accounting for any fuel impacts in the operation of our generating plants. Market prices fluctuate due to such things as seasonality, political turmoil, national weather trends, and domestic/international supply/demand imbalances. SCE&G continuously evaluates factors that impact prices, while employing contract strategies such as predetermined price adjustments, price collars, and quarterly adjustments to mitigate the effect market conditions have on coal contracts. Market publications, indices, industry solicitations, trade associations, and interacting with market participants are some of the sources and methods that we use to stay abreast of market trends and conditions.

**Q. HOW DOES THE COMPANY MANAGE COAL INVENTORIES TO
ENSURE RELIABILITY AND AVAILABILITY?**

A. To maintain adequate supply at its coal-fired generating facilities, the Company continuously manages inventories using long-term contracts, spot market purchases, and transportation options. The Company used these tools in support of its efforts to maintain an inventory of approximately 680,000 tons of coal during the

1 Review Period based on the average of each of 12 months' ending inventories to
2 support anticipated consumption during the Review Period and to maintain enough
3 coal to run each coal unit at full capacity for approximately 45 days. This
4 methodology allows for an inventory of more than 680,000 tons at the beginning of
5 high demand periods and less than 680,000 tons entering the milder months. This
6 targeted inventory level aids in protecting SCE&G and its customers against lack of
7 coal availability as well as against production and delivery problems that may arise
8 from time to time. The coal inventory is also an immediately available resource to
9 meet our supply needs when short-term market prices are unfavorable. A crucial
10 aspect of the Company's inventory management is balancing its short-term needs
11 against long-term requirements and expected future operating conditions.

12
13 **Q. PLEASE PROVIDE AN OVERVIEW OF TRANSPORTATION SERVICES**
14 **DURING THE REVIEW PERIOD.**

15 A. In 2017, CSX Transportation, Inc. ("CSX") remained the primary rail
16 transporter of coal for SCE&G. While the CSX contract rates remained relatively
17 stable during 2017, the rates were subject to quarterly adjustments according to
18 indices published by the American Association of Railroads. SCE&G's contract
19 with CSX expired at the end of 2017 and, due to significant management changes
20 at CSX, negotiations for a new rail transportation contract are still ongoing.
21 However, CSX is continuing to provide rail transportation services under an agreed
22 upon extension of the prior contract that locks in through February 2018 the contract

1 rates effective in December 2017 while the parties are finalizing these negotiations.
2 If the new contract is finalized prior to the hearing in this matter, the Company will
3 update the Commission on the progress of our negotiations at that time.

4 The Company also was under contract with Norfolk Southern Railway
5 Company during the Review Period.
6

7 **Q. DOES SCE&G HAVE ACCESS TO INTERNATIONAL COAL SUPPLIES?**

8 A. Yes. Although the Company did not receive any deliveries of international
9 coal during the Review Period, SCE&G has the capability of obtaining and
10 transporting to its coal generation facilities imported coal on a spot or as-needed
11 basis when prices for international coal are competitive with domestically produced
12 coal. SCE&G will continue to explore opportunities to utilize different
13 transportation options to reduce costs to our customers while reliably and prudently
14 maintaining access to adequate supplies for its electric generation needs.
15

16 **Q. PLEASE DESCRIBE THE STATE OF THE INTERNATIONAL COAL**
17 **MARKET IN WHICH SCE&G PARTICIPATES AND ITS CURRENT**
18 **PLANS REGARDING IMPORT COAL.**

19 A. International coal prices have risen over the Review Period, with the
20 Company continuing to monitor the market for use of international coal in
21 SCE&G's system. Demand for international coal demand has recently started to
22 increase with India consuming a third of the United States' coal exports. During the

Review Period, export coal shipments from United States ports increased because the coal prices were competitive in the global market and those coal exports are expected to remain strong into 2018.

SCE&G will continue to monitor and remain informed of opportunities to purchase international coal as part of its ongoing effort to reduce fuel costs for both SCE&G and its customers and to ensure that an adequate supply of coal is available to meet its generation needs.

Q. WHAT WERE SCE&G'S DELIVERED COAL COSTS FOR THE REVIEW PERIOD?

A. SCE&G's average delivered cost in dollars per MMBTU by month for coal purchased for steam plants during the Review Period is set forth in Table 1.

Table 1

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
\$3.26	\$3.46	\$3.23	\$3.21	\$3.24	\$3.14	\$3.18	\$3.18	\$3.35	\$3.29	\$3.34	\$3.32

Q. WHAT CHANGES DOES THE COMPANY ANTICIPATE IN THE COAL MARKET FOR THE 2018 FORECASTED PERIOD?

A. SCE&G's coal prices for the forecasted period are expected to remain stable at current levels. Over the past 12 months, the price per ton of CAPP coal increased from \$60.50 per ton on January 23, 2017, to \$64.50 per ton on December 30, 2017, representing an approximately 8% price increase. Spot coal prices have been stable

1 in 2018 at approximately \$64.25 per ton on January 29, 2018. Although the
2 increased consumption of coal in India and the unpredictability of Chinese demand
3 make it difficult to predict future coal prices, SCE&G does not presently expect any
4 further substantial price increases in 2018. However, any major market disruptions
5 such as adverse weather and increased international demand could cause pricing to
6 increase.

7 CAPP coal prices will continue to be affected by a dwindling active coal
8 reserve base, a lower amount of coal suppliers operating in the current market,
9 Environmental Protection Agency (“EPA”) and Mine Safety and Health
10 Administration regulations, and the redeployment of capital dollars away from coal
11 mining. These mounting issues have led to a more limited ability to borrow money
12 for recapitalization of mines in general, and the inability of mining companies to
13 acquire new mining permits. These factors will continue to put upward pressure on
14 coal production costs during 2018 and beyond. Notwithstanding these upward
15 pressures, the Company expects coal prices will increase as spot coal is purchased
16 in an elevated market and as long-term solicitations are received and concluded in
17 2018. Supply is expected to be stable and obtainable based primarily on the
18 continued supply of low cost natural gas, new combined-cycle gas generation
19 capacity being added inside and outside of SCE&G’s service area, and continued
20 decommissioning of coal consuming power plants, all of which reduces the demand
21 for coal.

1 **Q. WHAT ADDITIONAL STEPS IS THE COMPANY TAKING TO MITIGATE**
2 **FUEL-RELATED EXPENSES?**

3 A. SCE&G continuously tries to reduce costs by purchasing coal of lower
4 quality where practicable and acceptable to a coal-burning plant. During 2017,
5 SCE&G elected to take delivery of coals purchased mainly on the OTC “Over the
6 Counter” trading market as well as purchasing coal from Northern Appalachia.
7 Generally, these coals could be purchased at a lower delivered cost than lower
8 quality coals purchased directly from a Central Appalachian coal supplier. These
9 coals were consumed at SCE&G’s Cope, Williams, and Wateree Stations. SCE&G
10 will continue with this practice until it is no longer beneficial or different coals need
11 to be purchased for testing.

12 SCE&G also continues to evaluate the fuel flexibility for all of its coal-fired
13 plants. This evaluation considers fuels from different regions of the United States
14 and South America with multiple sulfur, ash, and BTU levels. Currently,
15 transportation rates, and in some cases original plant design, lead to a situation in
16 which coal from other basins is non-competitive with CAPP coal due in large part
17 to significant differences in coal qualities that could negatively impact plant
18 operations.

19 As discussed above, the Company in recent periods has increased the balance
20 of its coal purchases away from long-term agreements in favor of spot purchases to
21 provide more flexibility in managing the Company’s inventory, to adjust for market
22 conditions, and to capitalize upon the price competitiveness of spot coal, when

appropriate. And, with respect to all of its fuel purchases, the Company continuously evaluates opportunities for leveraging transportation options to obtain lower delivered rates.

Q. WHAT HAS BEEN THE RECENT PRICING TREND IN THE NO. 2 FUEL OIL INDUSTRY?

A. Delivered No. 2 fuel oil average monthly prices during the Review Period ranged from a low of \$11.35/MMBTU in June 2017 to a high of \$16.25/MMBTU in September 2017.

Set forth below is Table 2 that shows the average system delivered No. 2 fuel oil prices in dollars/MMBTU for the Review Period for No. 2 fuel oil purchased for steam plants, gas turbines, and combined cycle units.

Table 2

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
\$13.50	\$13.12	\$12.48	\$12.97	\$11.53	\$11.35	\$11.53	\$12.69	\$16.25	\$13.76	\$15.20	\$14.77

Q. WHAT RESPONSIBILITIES DOES THE FUEL DEPARTMENT HAVE WITH RESPECT TO SO₂ AND NO_x ALLOWANCES?

A. The Fuel Department purchases or trades EPA sulfur dioxide (“SO₂”) and nitrogen oxides (“NO_x”) emission allowances as needed by SCE&G to compensate for its SO₂ emissions. However, SCE&G currently is emitting less than its SO₂ and NO_x emission allowances allocated to it by the EPA. For this reason, the Company was not required to purchase SO₂ and NO_x emission allowances and was able to

1 sell 5,189 Vintage: 2015/2016 – CSAPR Ozone Season NO_x Allowances during the
2 Review Period. The Company also does not anticipate having to buy any SO₂ or
3 NO_x emission allowances in 2018.
4

5 **Q. PLEASE EXPLAIN THE FUEL DEPARTMENT’S ACTIVITIES RELATED**
6 **TO THE PROCUREMENT OF LIMESTONE FOR SCE&G’S POLLUTION**
7 **CONTROL FACILITIES.**

8 A. The Fuel Department is responsible for securing adequate and reliable
9 supplies of limestone for the effective operation of wet limestone scrubbers at the
10 Company’s Wateree and Williams Stations. There continues to be limited suppliers
11 for limestone for Williams and Wateree Stations. During the Review Period, the
12 Company acquired all of its supplies of limestone from a single source, which has
13 proven to be effective and market priced.

14 The limestone is delivered to Williams and Wateree Stations by truck since
15 the current source of supply is located near the plants. In summary, the Company
16 continues to evaluate supply and transportation options designed to ensure adequate
17 and reliable supplies of limestone at reasonable prices at its Williams and Wateree
18 Stations.

NUCLEAR FUEL PURCHASING

Q. PLEASE DESCRIBE THE NUCLEAR FUEL CYCLE.

A. Uranium ore is the source of fuel used to generate electricity in nuclear reactors. Naturally occurring uranium primarily consists of two isotopes, 0.7% Uranium-235 and 99.3% Uranium-238. As depicted in Exhibit No. __ (MDS-1) attached hereto, uranium must undergo a series of processes to produce a useable fuel before it can be used in a reactor for electricity generation. These processes are mining and milling, conversion, enrichment, and fabrication. In the first stage, uranium is mined. Once the ore is mined it is sent to a mill where it is crushed into smaller pieces and then introduced to a slurry in which a strong mixed solution is used to dissolve the uranium. At this point in the mining and milling process, the uranium is then dried and commonly referred to as yellowcake, also known as uranium oxide (“U₃O₈”) concentrate. In the next step of the process, known as conversion, the U₃O₈ goes through a chemical process in which it is converted into uranium hexafluoride (“UF₆”). The UF₆ then becomes the feedstock required in the isotopic separation process, known as enrichment. Once the UF₆ is enriched to the desired level, it is converted to uranium dioxide (“UO₂”) powder and formed into pellets. This process, and the subsequent steps of inserting the fuel pellets into fuel rods and bundling the rods into fuel assemblies for use in nuclear reactors, is referred to as fabrication.

1 **Q. PLEASE DESCRIBE HOW YOUR DEPARTMENT MAKES PURCHASING**
2 **DECISIONS FOR NUCLEAR FUEL.**

3 A. During the Review Period, the responsibilities related to nuclear fuel
4 procurement were shared between my Department and the Nuclear Design and
5 Analysis department (“NDA”). NDA prepared a forecasted refueling schedule
6 which is reviewed by my Department on an annual basis. This forecast formed the
7 foundation for the nuclear fuel requirements forecast. Once the nuclear fuel
8 requirements forecast was developed, the Fuel Department was primarily
9 responsible for procuring U_3O_8 and conversion services and NDA was primarily
10 responsible for procuring enrichment and fabrication services. Collectively, my
11 Department and NDA form the Nuclear Fuel Procurement team (“Team”). The
12 Team determined nuclear fuel requirements, shared market information and
13 reviewed offers related to all segments of the nuclear fuel cycle.

14
15 **Q. ARE SCE&G’S CONTRACTS TO PURCHASE NUCLEAR FUEL**
16 **NORMALLY SHORT-TERM OR LONG-TERM?**

17 A. Due to the long lead time required to process uranium prior to being loaded
18 in SCE&G’s reactor, the Company’s contracts are normally long-term contracts,
19 with a term in excess of one year. Currently the Company has long-term
20 commitments for uranium and conversion services, enrichment and fabrication for
21 V.C. Summer Unit One. During the Review Period, the Team monitored the nuclear
22 fuel market on an ongoing basis and evaluated spot market opportunities from time

1 to time that may supplement long-term contract supplies as appropriate. Included in
2 the procurement process is the Company's contingency reserve. The nuclear fuel
3 contingency reserve targets are designed to provide security of supply for future
4 requirements by mitigating potential market disruptions.

5
6 **Q. PLEASE DESCRIBE THE MOVEMENT OF NUCLEAR FUEL PRICES**
7 **DURING THE CURRENT REVIEW PERIOD.**

8 A. The nuclear fuels market is comprised of two types of pricing scenarios: spot
9 and long-term. Spot prices typically represent any transaction taking place within a
10 year while long-term prices require a commitment for some period beyond one year.
11 Each of the nuclear fuel processes can be purchased individually or bundled at any
12 point in the fuel cycle, with the exception of fabrication. Fabrication is a complex
13 process that has specific requirements for each individual reactor and therefore is
14 typically sourced to a single supplier with long-term agreements. Over the past few
15 years short-term and long-term prices for uranium, conversion, and enrichment have
16 remained stable. In the near term, prices for uranium and the other processes in the
17 nuclear fuel cycle are anticipated to continue to remain stable for both short-term
18 and long-term pricing.

CONCLUSION

Q. WHAT REQUEST DOES SCE&G MAKE OF THE COMMISSION IN THIS PROCEEDING?

A. The Fuel Department has made reasonable and prudent efforts to obtain reliable, high quality supplies of coal, No. 2 fuel oil, and limestone and associated transportation at the lowest possible cost to SCE&G's customers. Likewise, the Fuel Department made reasonable and prudent efforts to obtain market-based prices and reliable supply for its nuclear fuel needs for electric generation and procured at reasonable prices the necessary capacity for delivery of that supply. Therefore, on behalf of SCE&G, I respectfully request that the Commission find that the Company's fuel purchasing practices were reasonable and prudent for the Review Period.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

The Nuclear Fuel Cycle

